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ABSTRACT

The Department of Communication Studies at the University of Missouri-Kansas City is developing a computer package designed to teach and assess aural, visual, and oral communication skills through a multi-media approach with classroom tests, portfolios, and performance measures. Before developing the multi-method approach, the department tried six separate assessment strategies. The department wishes to provide user-friendly, interactive, and skill-oriented instruction that can be used in a personal system of instruction through a CD-ROM media laboratory, lecture, or individualized approach. The computerized learning approach is designed to adapt to two major trends in higher education: ethnic sensitivity and interactive-media education. The compact disc provides emphasis and supporting examples to illustrate communication concepts and extensive assessment of student knowledge, skills, and values. The variety of pathways available into the CD-ROM can be illustrated by the chapter on "supporting ideas." Even though the cost of developing the CD-ROM systems is high, costs can be managed because the material can be customized for use in large enrollment college courses. Advantages of this approach to teaching the basic speech communication course are that it: fosters student responsibility, uses peer instruction, adapts to learning styles, teaches computer literacy, gives effective speech examples, uses a module approach, and enables distance learning. This interactive, multi-media CD can provide a viable instructional and assessment tool for communication studies. (Contains 64 references and 4 figures illustrating pathways.) (RS)

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Computerized Communication Assessment Management: A Multi-Method Approach to Skills and Field Assessment

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A paper presented at the 1994 Assessment Conference in Indianapolis "Instruments and Strategies that Work," Indianapolis, Indiana, November 8, 1994.

Abstract: We are developing a computer package designed to teach and assess aural, visual, and oral communication skills through a multi-media approach with classroom tests, portfolios, and performance measures. By using a custom publisher--Hayden-McNeil (Midnight Oil Multimedia)--we are creating a computerized package to which departments can add their own instructional and assessment instruments. By using audio and video segments, we can assess skill competency in addition to the cognitive competencies previously assessed. This computerized package is a work-in-progress, and we welcome your suggestions.

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Computerized Communication Assessment Management: A Multi-Method Approach to Skills and Field Assessment

Finding ways to effectively assess student learning is crucial in the field of communication (Backlund, 1989; Loacker, 1981; Hunt, 1990; Morreale & colleagues, 1991). As part of a government mandated assessment process initiated nearly ten years ago, necessity forced Missouri's public colleges and universities to enter the assessment movement in speech communication (Aitken and Neer, 1991, 1992, 1993a). In our department--while conducting our required major field assessment--we have discovered that assessment results are highly political (Aitken, 1993; Aitken & Neer 1992b; Neer, 1989). Despite years of working on a locally developed measure, watching national trends, using nationally normed tests, and trying various techniques, we continue to be dissatisfied by the assessment process.

Computer technology has demonstrated a variety of instructional advantages, including learning and cost (Abrami, 1985; Bialo, 1993; Fletcher, 1990; Howe, 1994; Perlman, 1989). In addition, the technique may help motivation (Brophy, 1987). When used in individualized instruction, computer technology demonstrates the ability to adapt to individual student learning (Clements, 1976). Computer use in the communication courses has been around for several years and has continued to interest faculty in our field (Ashmore, 1988; Aronic & Katz, 1984; Donaghy, 1988; Hemphill & Standerfer, 1978; Hughey, 1990; Pathak & Beall, 1994). Perhaps one of the most important areas in which computerized instruction can help in speech communication is in the area of assessment.

In an effort to provide an instructional and assessment alternative for the basic course, we developed a CD-ROM (Compaq Disk-Read Only Memory)

computerized approach to the basic course. We think computerized assessment can be relatively efficient and easily managed. Partly based on previous experimentation with a personalized system of instruction (PSI) for the basic course, we developed a CD-ROM package to use in an individualized approach to instruction. Because of the importance of adapting to individual learners, we were concerned about adapting to particular styles of learning and instruction (Kolb, 1985; McCarthy, 1987). We expect a variety of potential advantages from the CD-ROM instruction. The purpose of this paper is to discuss to the development of assessment procedures in our department which has led to a computerized package designed for use in a basic communication course.

Department Background

For our department, the assessment process has been difficult. As part of a national movement among governors, our former governor found higher education assessment to be a useful election issue. We were ill-prepared to have the state immediately thrust our department into new forms of assessment. We were frustrated by the fact that politicians fail to recognize that faculty have assessed students and programs as long as higher education has existed in this country. When our faculty joined the current assessment movement with the real objective of improving our program, we quickly became disappointed by the political nature of the process. We failed to anticipate the competition between faculty from different departments and schools that assessment would cause. Nor were we prepared for the frustration over new assessment expectations caused by no funding support. Most importantly, we did not expect a sense of defeat by the mandates to change our methods with each new whim from higher levels.

Our department has tried it all. First, we used a paper and pencil test, which we developed into a series of five tests which took up to two hours each. The major problems were the lack of faculty commitment in developing the tests and the excessive time these tests stole from class time that could be spent in instruction. They were, however, informative.

As a second line of strategies, we used a shotgun approach to assessment, with student, faculty, and alumni questionnaires and focus groups. The good part of this assessment is that with the new dialog going on, we decided to revise our curriculum into a competency-based program which incorporated the assessment process.

A third major strategy was to use three key courses in the assessment process. The cornerstone course is an introduction to the department and the field of communication studies, including expected competencies, research methods, and theories. The cornerstone is a course for graduating seniors in which we review competencies while supervising student research. Assessment, including portfolios, is structured into the cornerstone, capstone, and junior-level required course in organizational communication.

The fourth key strategy revolved around student course, program, employment, and curriculum portfolios. The idea of portfolios is an old one which lends itself well to the field of communication. Artists, creative writers, and mass media professionals, for example, traditionally have been encouraged to prepare a portfolio. Apparently, many institutions are finding portfolios useful. As Ory (1991) explained about one study: "one-third of the institutions reported collecting student portfolios while 85% reported using assessment results for program evaluation" (p. 451). Student portfolios are relatively common on the elementary and high school levels (Abruscato, 1993; DeSantis, 1993; Forseth, 1992; Gorrell, 1993), in assessing written

communication (Brand, 1992; Dickson, 1993; LaPoint, 1992; Wauters, 1992; Winter & Winter, 1992), and are becoming accepted in a variety of contexts (e.g. Adams, 1992, Harrison, 1991; Jacobi, Astin, Ayala, 1987; Hutchings, 1990). One unique, and growing trend is to use student portfolios of self-acquired competencies to evaluate college credit for work outside of educational institutions (Dick, & Robinson, 1991; White, 1993). These varied purposes show the versatility of the portfolio technique.

We tried our fifth strategy about a year ago, when the Board of Trustees and state levels decided we should use major field tests which are nationally normed. Threatening to tie funding levels to such test results, we were obliged to respond with results from nationally-normed tests. There are some measures for mass and speech communication, but they fail to assess our specific program objectives, and those measures that assess skills are complicated and expensive. Because of the financial and time costs associated with testing, and the disheartening results when we tried to develop our own testing methods, we decided that we at least wanted our students to have something useful out of the nationally-normed test: a score to help our students be admitted to a program of graduate or professional study. So, our pragmatic choice had little to do with our communication major (e.g. LSAT, MAT, GRE, or GMAT). We arranged a prepayment system for the MAT with our guidance and testing center, which gave the test to students for us. With no consequence for a low score or refusal to take the test all together, we were plagued with problems: refusal to turn in the test results that some students used for graduate applications, plus low student motivation to do well on the test for those who did not plan to attend graduate school (and subsequent low scores). Basically, all we really knew was that our graduates had the full gamut of possible scores.

As a sixth strategy, because we see no real value in the graduate school tests, we now have turned to a nationally-normed test in critical thinking that we administer in the capstone course. The test is inexpensive, relatively brief, and does count as a nationally-normed measure to satisfy higher administrative levels. We are not sure what we will learn from this test, but we will use it in conjunction with our new curriculum and portfolio procedures. As Hutchings (1990) said, the use of portfolio assessment is on the rise because "clearly, people are finding something they need in portfolios" (p. 6). We do find something we need in portfolio, and in the cornerstone and capstone course assessment process. But, we have found several major problems with portfolios, in that they are difficult to interpret, manage, and store. And we have the administrators nagging us for something that is nationally normed. So, again we began looking for another solution.

CD-ROM Instructional Assessment Strategy

Our newest strategy is the development of a multi-media computer package which we developed to teach and assess aural, visual, and oral speech communication skills. We are optimistic that this approach will combine instructional and assessment techniques in a manageable form. The Compact Disc-Read Only Memory (CD-ROM) we are developing uses several assessment strategies. To do the real work of program assessment, we needed local and normed, easy to use measure that could give us useful information about our students' accomplishments through our department. As we continue the student portfolios, cornerstone course, and capstone course assessment procedures, we will tie this multi-media package to assessment in the basic communication course. Through this approach, we seek evidence of student competence in such program objectives as writing skills, critical

thinking skills, interpersonal communication, language skills, leadership skills, reading skills, research skills, oral communication, cultural appreciation, decision-making skills, knowledge of the field, and ethics. In addition, we can compare learning between majors and nonmajors, first year and graduating students.

We plan to test the CD-ROM computer-mediated assessment with high school students taking the basic course for college credit this summer, then use at two college campuses in Fall, 1995. Some of the new applications of computer-mediated instruction in communication studies has potential for the assessment movement (Pathak & Beall, 1994; Cronin, in press). We want the compact disc (CD) to be used in basic course assessment, then later for program assessment. Students will be able save their work to floppy disk which can be given to the instructor or uploaded to a course or instructor file on an internal disc drive, network, or mainframe. Approximately 75% of the CD content will be diagnostic assessment and 25% communication will be instructional content delivery.

We wanted to provide user-friendly, interactive, and skill-oriented instruction that can be used in a personal system of instruction through a CD-ROM media laboratory, lecture, or individualized approach. Although the issue of student accessibility has been raised, the predictions are that within two years, virtually all computers will have CD drives. We are finding improved computer competence among our entering students, and with new computer laboratory facilities, we expect all students to have appropriate access. In the Fall, 1995, I will teach a basic communication course section with 75 students. I have four rooms in which to teach the course: a large lecture room, a large computer laboratory, and two small classrooms. I plan to have a few large group meetings, but primarily expect to roam between

students working in small groups, students delivering speeches, and students working on computers. In contrast, Richard Nitcavic, at Ball State University, expects to use the CD as an auxiliary instructional tool for numerous sections. Students may work on individual computers or in a college laboratory.

We expect the CD to enhance our assessment ability by providing automatic statistical computations and computer file management. Some measures we are including are already normed. As the computerized materials are adopted at other schools, we can receive data that will enable the beginning of national norms for other measures contained in the package. This computerized approach has excellent potential for making the assessment measures and portfolios truly viable means of assessment of communication competencies. In addition, when a student asks a faculty member--a year or two later to write a letter of reference--the professor should be able to access the student's computer file to examine visual and written matter.

Pedagogical Orientation

Instructional technology, particularly interactive video and computerized multi-media instruction is a rapidly changing learning method (McDermott, 1992; Strange, Tucker, Uhlig, & Feldman, 1988). Technology and interactive video has demonstrated an ability to improve student learning (Fletcher, 1990). From our standpoint, the capacity for improved demonstrations (visual and aural) are a unique value of the CD in communication studies. Further, the professor can have more free time to work one-on-one with students because the CD can handle much of what has traditionally be faculty lecture time. By working with individual students and small groups, the professor can give students more direct attention. The

increased student involvement in the learning process makes the student an interactive rather than a passive learner.

This instructional package under discussion--entitled *Public Speaking 2000*--provides a series of interactive multi-media modules to teach communication in undergraduate colleges and universities. The emphasis is on skill competency, although the authors believe a basic understanding of communication theory is necessary to provide the foundation. The instructional package includes a textbook and Macintosh compatible Compaq Disc package (we do not know if the IBM compatible CD will be ready in 1995). Students are expected to acquire competencies in three key areas: (a) research-based knowledge, (b) communication skills, (c) appreciation of multicultural values.

In this time of a changing US population where the dominant culture will be the minority one within 60 years (Levine, 1990), we believe the time has come to reformat how we teach public speaking. Therefore, an underlying philosophy of the importance of sensitivity to the US American co-cultures and international cultures permeates the work. Traditionally, public speaking in this country has emphasized a white, male, one-way approach. For example, the oral story-telling traditions of women and the vibrant pulpit style of Americans of African decent have little recognition in most public speaking instruction. In contrast, the CD-ROM material has traditional information plus examples and techniques of people from various ethnic backgrounds. As part of the multiculturalism of these modules, Spanish is integrated at various points in the instructional package. Thus, this computerized learning approach is designed to adapt to two major trends in higher education: ethnic sensitivity and interactive-media education.

Textbook

A textbook of core information for the basic public speaking course can be customized for specific adoptions. This book offers a quick and easy reference to core information for the public speaking course.

CD Content

The compact disc (CD) is designed to assist the student by providing: (a) emphasis and supporting examples to illustrate communication concepts (comparable to what a student might encounter in an instructor lecture), and (b) extensive assessment of student knowledge, skills, and values.

The modules enable students to use CD-ROM interactive media to read, hear, and see examples and to select application activities that adapt to various course, instructor, or personal strategies. The modules contain a variety of illustrations, such as: quicktime videos to illustrate concepts; audiotapes of example historical, current, and student speakers; photographs to accompany written material; sample speech segments from archives; and assessment testing. The end product will contain approximately 600 megabytes, which is why the CD is necessary. A CD uses read-only memory, so a CD with 600 megabytes of information can be used on a computer, for example, with only 4 megabytes of hard-drive. Because sound and videos use considerable computer space, much of the CD material is contained in written form. The CD presentation, however, is quite different from the written form of a textbook. Most importantly, the student does not need to follow a singular linear path through the material. The student logically can use a variety of pathways in any order she or he desires, so that the learning process adapts to the student's most effective learning style.

Caroline Price, who is the computer program from Midnight Oil Multimedia (Hayden-McNeil Publishing) will demonstrate the package. Using the computer package is the best way to understand what it offers. To

help you remember what you see, I have explained major pathways in this paper.

Pathways

For our prototype module, we have selected a chapter on supporting ideas. We find this chapter to be one of the most difficult parts of public speaking to teach and one that lends itself well to the multi-media format. A student would enter this chapter with a choice of pathways. In this case, the content of the chapter revolves around types of support and attention techniques. When the student uses a mouse to click either button (support or attention), the student will follow a multi-media pathway of instruction (words, pictures, videos, audio recording). The key ideas of the module are presented in a lecture-like format that provides an overview to orient the student. Students see and hear information. Additional content of introductory public speaking principles is contained in the textbook accompanying the CD. The CD content contains the examples, illustrations, music, analogies, and other material to support the basic ideas in the written narrative. Information about US co-cultures and non-US cultures is integrated throughout the material (not used as separate sections). There is an underlying assumption within the material that advocates respect for the myriad of possible cultural influences a public speaker may encounter.

We teach public speaking competencies grounded in experience and research, without expecting students to recite the sources of research in communication studies. References and research are, however, a pathway of the CD which can be selected. Here are the pathway choices for student learning and assessment. The screens shown here on paper are not complete because animation cannot be captured in this technique and because the

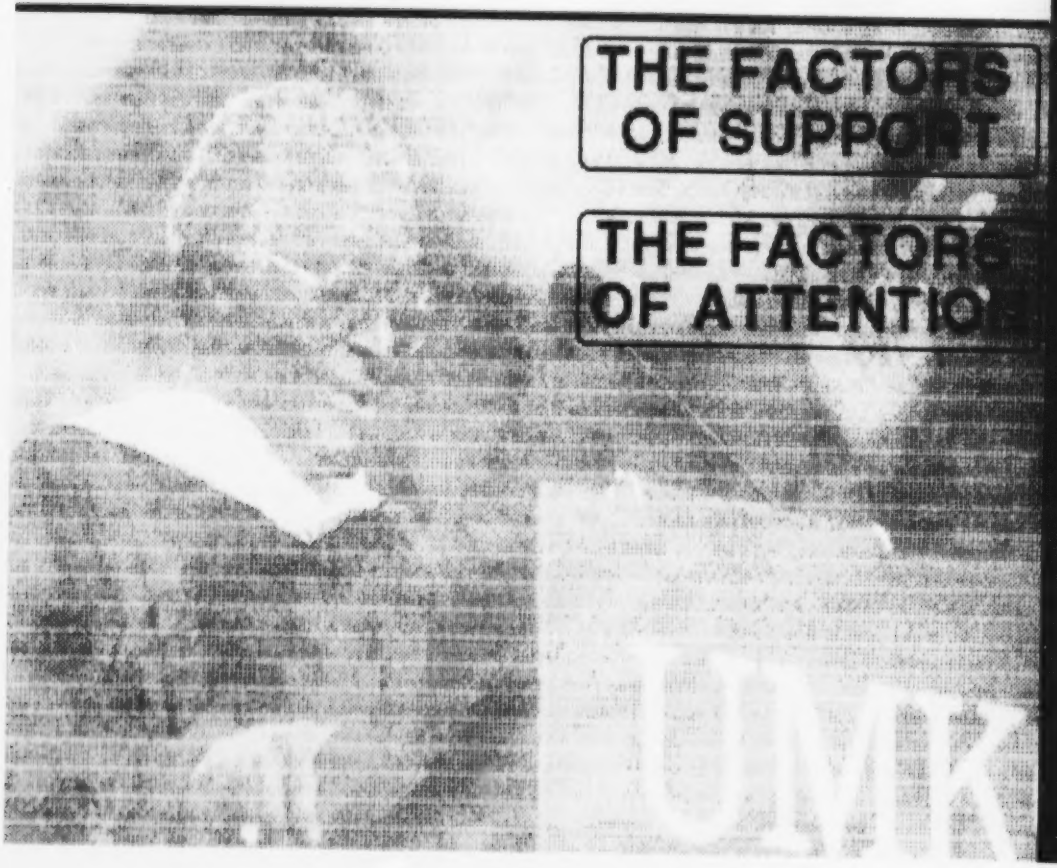
screens are larger than my printer's capacity. They should give you an idea of how the pathways work.

Basic Pathways

- **Objectives and Key Words.** This button shows student the instructional objectives and key words.
- **Assessment.** This path will take the student to three types of assessment: multiple-choice questions, individual assignments, and self assessment. There is more explanation of this pathway later in the paper.
- **Encyclopedia.** With this pathway the student can use a word search through the encyclopedia for the entire course. More than just a glossary, the encyclopedia contains examples and illustrations one would find in a textbook. Various other buttons pathway to encyclopedic information.
- **Real World.** This pathway gives real world illustrations of various communication contexts. For example, in this module, the student can listen to a physician speaking about the problems of drug abuse. This real world example which is in Spanish can be understood by non-Spanish speaking students. The context and similarities in language make a case for the importance of adequate support in communication.
- **Cool Stuff.** This pathway takes the student to several divergent paths explained later in the paper.
- **Helps.** The student can find help for operating the CD in this pathway.
- **Directional Buttons**. You will notice at the bottom that the student can always go back, pause, or go forward by using these buttons.

Chapter 5:

SUPPORTING IDEAS



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Assessment Pathways

- **Multiple Choice Testing (Testing Your Grasp).** Traditional multiple-choice questions are available in this section, but so are sound and video examples about which students are questioned. For example, while listening to a brief speech segment by former President Ronald Reagan, students must identify the type of support in use. A randomized process provides a test for each chapter. To minimize cheating and guessing, students cannot change answers, nor do a test twice. Students are not permitted to select multiple answers. In addition, if after the first few questions the student is failing the test, the test aborts and advises the student to study more before taking the test. Students can record the score to disk for instructor review. The test uses a modified form of mastery learning. When a student has a wrong answer, the explanation is given or the student is diverted to an encyclopedic explanation.
- **Individual Assignments (Working Out).** An array of assignments designed to study and apply the material are provided in this section. The student sees a menu of possible assessment assignments, which are categorized according to their nature: for individual, dyad, or group work; in objective, essay, or discussion format; or for listening or presentation to others. Some assignments are designed to stimulate individual problem solving skills or group discussion techniques related to module information. Some activities provide skill applications which can be done by the student to apply communication concepts from the module. Many activities are to be completed in a non-computer mediated settings (e.g. in a pairs, small or large group setting). Student can save answers to the student portfolio on disk for a personal record or upload for instructor review.
- **Self Assessment (Measuring Up).** Normed measures are provided in this section. Each module has at least one assessment measure for which data are available for analysis. These tests have interpretations available for student self-knowledge and instructor or departmental interpretation.

ASSESSMENT

- Multiple Choice Test
- Individual Assignments
- Self Assessment

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Cool Stuff Pathways

- **Ivory Tower.** This section shows reference listing that relate to the chapter. Students can use the information for further reading or research. In addition, the students can hear the authors discuss some aspect of the material about which they disagree. The purpose is to allow the student to pursue more divergent thinking on the material.
- **Readings.** For each section is a classic historical or modern reading relevant to the chapter. In this chapter, for example, an article by Toolmin gives students a new way of looking at the process.
- **Look What We Found.** This pathway will provide the student with some key information relevant to the chapter but not one of the key ideas presented. In this case, for example, reasoning fallacies are presented with sound examples by one of the authors.
- **Mind Benders.** These puzzles and questions are designed to help the student think about the material.
- **Listen Up.** This pathway gives the student a speech to read (hear) and analyze.

COOL STUFF

- Ivory Tower
- Readings
- Look What We Found
- Mind Benders
- Listen Up

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CD Module

Communicating in the Information Age (Chapter 1, 2)
- Multi-cultural considerations
- Ethical considerations
- Technological considerations

Preparing for the Presentation (Chapter 4, 5)
- Assessing the need for the presentation
- Establishing reasonable goals
- Making a self inventory
- Gathering additional information

Constructing the Presentation (Chapter 6, 7, 8, 9)
- Supporting ideas
- Organizing ideas
- Outlining the presentation
- Starting the presentation
- Concluding the presentation

Managing the Presentation (Chapter 10, 11, 12)
- Refining Language
- Using Visual Aids
- Maximizing Nonverbal Impact

Employing Functional strategies (Chapters 13, 14, 15, 16)
- Informative Strategies
- Persuasive Strategies
- Strategies for Special Occasions
- Strategies for Interviews and Groups

Just Do It (Chapter 3)
- Topic selection
- The first speech
- Overview of techniques
- Stress management

Customization

When discussing this CD development with a colleague, she said, "Do you know how much those things cost? The estimate for a CD we wanted to put together was $500,000!" It is true that the cost of developing such a package can be astronomical. In our case, however, because public speaking is one of the largest enrollment college courses in the country, we hope it will be a worthwhile investment. More importantly, however, costs can be managed because this material can be customized for large adoptions. Many college courses have large numbers of students enrolled each year in their basic course. For small adoptions, faculty can add whatever materials they want to the spiral bound textbook. For large adoptions (over 1500 copies of the CD will be sold), the CD is customizable. Although the media package is designed to be complete as it is, large adoptions can customize so that they have their own college's CD. We believe that the customization of multi-media instruction and assessment may be the most exciting part of this whole idea.

Imagine how a course director or departmental faculty could modify this package. You might want specific information on: (a) how to use the computer laboratories on your campus, (b) how to record to disk or upload CD responses, (c) computer facilities locations and hours on campus, (d) the course syllabus, (e) course objectives, (f) names of course instructors, (g) major assignments, (h) departmental speech critique forms, (i) localized assessment testing, (j) additional assessment measures, (k) key instructional activities, (l) photographs of your campus, (m) segments from good student speeches from your campus, and so on.

Continuous Revision

The interactive multi-media module is designed for an introductory college-level public speaking course. There is no need for a revision every few years because the materials will be revised, updated, and expanded on a continuous basis. Subsequent modules may be added at a later time to broaden the approach for use in a combination or interpersonal approach.

Individualized Instruction

Individualized instruction or a personal system of instruction (PSI) in college communication courses has been available for over 20 years (Seiler & Forsythe, 1989; Taylor, 1989; Taylor & Shaefer, 1987). Often instructors have a media laboratory with audio and videotapes of the book materials to support instruction. Undergraduate or graduate students may help teach the course. In a mastery approach to learning, teachers may require student competency of material before students were allowed to go on to new material. Pair, small group, and public speaking assignments may be arranged to be completed with other students at the same level, so that all students need to meet together on a regular basis in a classroom. Although PSI has been valuable, it can be a complicated approach to implement.

Today, with CD-ROM interactive media capabilities, the technology is here to facilitate the PSI approach. Students can read, study, test, and complete certain assignments and activities through mediated learning with indirect faculty supervision. Flexible class meeting time can be modified or reduced, so that faculty time will be used to: (a) coordinate learning activities, (b) tutor students on a one-to-one basis, and (c) work with student performance assignments (particularly speeches).

Instructional Package Advantages

There are several potential advantages to using this approach to teaching the basic speech communication course. The method:

Fosters Student Responsibility. Often such courses use student contracts, in which the student determines how much material will be completed, at what competency level, and at what rate. Responsibility for learning rests squarely with the student.

Adapts to Student Pace. Students can learn at their own pace, which may be faster, slower, or more irregular than a traditional approach.

Uses Peer Instruction. Peer tutoring is well received by certain students. Students in the same instructional group, undergraduates who successfully completed the course, and graduate teaching assistants can make excellent facilitators.

Adapts to Learning Styles. The package encourages students to select learning materials that best fit the student. Thus, teachers can better adapt to different learning styles so that students learn more effectively.

Helps Special Needs Students. Adaptations can be made to help students with disabilities, high communication apprehension, and to students who are considered "at risk."

Teaches Computer Literacy. Students can improve their computer literacy through this computer-mediated learning.

Uses the Speech-Media Connection. Because many departments of communication provide instruction in speech and media communication, the two emphasis areas have a natural connection for a combination in basic course instruction. The student learns speech communication through media communication.

Provides Assessment Testing. This package has excellent potential for use in assessment testing. The test bank for modules and additional testing materials can serve as a tool for student assessment. The testing material can be used to satisfy school and state-mandated requirements for nationally-

normed assessment testing, for example. Students can save their test scores to a disk or to a server.

Gives Effective Speech Examples. In an oral communication course, the sound and video will be interspersed throughout the materials so students actually see and hear examples of oral communication (e.g. famous politicians speak in their own voices, segments from typical speeches demonstrate points). No longer do students need to simply read a description of how to or how not to do something. This format will be an interesting and easy to understand format for effective learning and can be particularly effective when used to assist in instructor lectures.

Is Modern. As new generations of students enter college--who are adept at multi-screen viewing, rapid visual images, interactive videos, and computer technology--this program can adapts to student processing rather than continuing traditional one-way teaching styles. In response to a book being field tested, one student said that the material was too dull: "You need to adapt," he said, "remember we are the Beavis and Butthead Generation." This interactive media learning approach compromises nothing in the way of course content or standards, and in fact may demand more. This learning approach, however, does adapt to the users.

Is Financially Economical. In a time when many educators find their budgets shrinking, the CD approach to learning is a way to adapt to budget constraints.

Uses a Module Approach. After the initial public speaking materials are completed for this instructional package, additional modules--e.g. family communication, organizational communication, mass media--can be designed to fit the various program needs for the basic course. This modular

approach also will allow for a broad approach for program assessment. The modules will be enhanced on a continuous basis.

Enables Distance Learning. The flexibility of the approach and potential for modem transmission make it ideal for distance learning and nontraditional students. Depending on facilities, student could access interactive study materials 24 hours a day.

Conclusion

Our primary purpose is to provide a viable instructional and assessment tool for communication studies. With shrinking budgets for some types of instruction, colleges and universities are finding a cost-effective method of instruction through individual adaptation to students through computer technology. Networking and media laboratories can support new instructional techniques for the classroom, nontraditional students, and distance learning. The expectations of generations of people raised on media and computers can be met with this exciting new technology. People need to know how to speak publicly through mediated approaches and to improve their communication through technological learning. This interactive multi-media CD will offer an alternative unlike anything currently available.

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